



Air Quality Permitting Statement of Basis

February 22, 2006

Permit to Construct No. P-050003

Earl Scheib of Idaho Inc., Garden City, Idaho

Facility ID No. 001-00176

Prepared by:

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AIR QUALITY DIVISION

Final

Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
BACT	Best Available Control Technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EI	emissions inventory
EPA	U.S. Environmental Protection Agency
HAPs	hazardous air pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
km	kilometer
m	meter(s)
MACT	Maximum Achievable Control Technology
MSDS	material safety data sheet
NAAQS	national ambient air quality standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO ₂	sulfur dioxide
TAP	toxic air pollutant
T/yr	tons per year
µg/m ³	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

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1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct and to satisfy the requirements of a Consent Order issued on December 28, 2004.

2. FACILITY DESCRIPTION

The Earl Scheib of Idaho (ESI) painting and auto body shop consists of automobile surface preparation and surface coating. The surface coating is performed in the paint booth. The spray guns used by ESI are high volume-low pressure (HVLP) siphon-fed guns. An exhaust fan draws air past the painting operation and out the top of the stack. The booth is equipped with a filtration system that cleans the intake air and another filtration system that filters airborne PM from the paint out of the exit air. The flow of clean air through the paint booth decreases paint drying time, improves ventilation for the worker inside the booth, and helps increase visibility in the booth.

3. FACILITY / AREA CLASSIFICATION

ESI is defined as a true minor facility because its potential to emit is less than all major source thresholds. The Standard Industrial Classification defining the facility is 7532. The Aerometric Information Retrieval System (AIRS) classification is "B."

The facility is located within AQCR 64 and UTM zone 11. The facility is located in Ada County which is designated as attainment for PM₁₀ and CO, and unclassifiable for all other criteria pollutants.

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at ESI. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

ESI was issued a PTC on November 8, 2000. On January 27, 2004, DEQ conducted a routine inspection of the facility. The findings of this inspection resulted in a Consent Order issued December 28, 2004. The consent order stated ESI was to submit a PTC application. ESI's PTC application was to provide an accurate reflection of the painting operation and the ability to demonstrate compliance with the permit terms and conditions.

4.1 *Application Chronology*

November 8, 2000	PTC issued
December 28, 2004	Consent Order issued
January 25, 2005	DEQ received the Spray Booth Operation and Maintenance Manual as required in paragraph eight of the Consent Order
February 2, 2005	DEQ received the PTC application with no application fee attached
February 10, 2005	DEQ Regional Office issued a letter stating action on the application will cease until application fee is paid
February 14, 2005	DEQ received the PTC application fee
March 4, 2005	DEQ determined the PTC application incomplete

April 1, 2005	DEQ received an addendum to the PTC application
June 30, 2005	DEQ inactivated the PTC application
October 13, 2005	DEQ received an update of the PTC application
November 16, 2005	DEQ declared the PTC application active
December 14, 2005	DEQ declared the PTC application complete
January 20, 2006	DEQ sent Earl Scheib of Idaho a draft Permit
February 6, 2006	DEQ received notice from Earl Scheib the draft permit was review by Mr. Jim Smith.
February 9, 2006	DEQ received PTC processing fee payment
February 14, 2006	DEQ received comments from Boise Regional Office

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

The high-tech airless spray gun with 99 % spray transfer efficiency is used in the paint booth. The paint booth consists of a horizontal structure equipped with doors at one end and filters at both ends. One bank of filters clean the air as it come into the paint booth and the other filters removes particulate matter for the exit air. A negative air blower is used to ensure paint fumes are contained within the area of the booth. The blower pulls air from the interior of the booth through a series of particulate filters to a 36 inch vent located on the roof approximately 23 feet above grade. The flow rate is 23,000 actual cubic feet per minute. The exhaust temperature is 68 °F.

5.2 Emissions Inventory

The MSDS sheets with the supplemental material supplied by ESI provided the establishment of a spreadsheets found in Appendices B and C. The spreadsheets indicate the VOC, TAPs and PM₁₀ determinations in the Table 5.1 summary.

Table 5.1 EMISSIONS ESTIMATES

Emissions Unit	PM ₁₀		VOC		Methyl-N-Amyl Ketone		N-Butyl Acetate	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Paint Booth	0.025	0.04	2.82	4.5	1.4	2.15	0.85	1.3

The paint application rate was determined using the maximum of five vehicles per day with the spray gun usage of 1.95 gallons per vehicle as stated in the permit application. Methyl n-Amyl Ketone and n-Butyl Acetone are the two TAPs emitted in the greatest quantity by ESI. The worst case emissions were calculated by using maximum spray gun rate of 1.95 gallons per vehicle times five vehicles per day divided by 11 hr/day to derive the gallons per hour usage. This equates to 0.89 gallons per hour usage. The worst case for a TAP is determined by using a product in which each TAP (Methyl n-Amyl Ketone and n-Butyl Acetone) is the only TAP in the product. In each case the screening level and the acceptable ambient concentration (AAC) was not exceeded. Calculating the screening level for Methyl n-Amyl Ketone is as follows: 0.89 gal/hr X 6.8 lb VOC/gal = 6.05 lb/hr emissions for Methyl n-Amyl Ketone. The screening level for Methyl n-Amyl Ketone is 15.7 lb/hr. The ACC from IDAPA 58.01.01.585 for Methyl n-Amyl Ketone is 11.75 mg/m³ while the worst case scenario indicates an ACC to be 0.11 mg/m³. The ACC for Methyl n-Amyl Ketone is calculated as follows: 6.05 lb/hr X

46.57 ug/m³ per 1 lb/hr emission rate (the concentration of 46.57 ug/m³ was determined from modeling with the prior permit's technical memorandum) X 0.4 (the 24 average persistence factor) / 1000ug/mg equals 0.11 mg/m³. The same process was used to determine n-Butyl Acetate emissions to be below the respective pound per hour screening level and AAC level.

5.3 Modeling

The modeling analysis of the paint booth stack using EPA's SCREEN3 dispersion model was determined with the prior PTC's technical memorandum. The Screen 3 modeling results can be found in Appendix D. The maximum 1-hour pollutant concentration from Screen 3 [ug/m³ / 1lb/hr] = 46.57 ug/m³. This is converted to a 24 -hour maximum by multiplying with the 24 hour persistence factor of 0.4 which yields 0.019 mg/m³ per 1 lb/hr emission. Each pollutant's hourly emission can be multiplied by 0.019 mg/m³ to determine the ACC for a 24 hour period. Each TAPs average emission rate when multiplied by 0.019 mg/m³ yields an ACC below the standard stated in IDAPA 58.01.01.585. PM₁₀ emissions are below the significant emissions rates stated in 58.01.01.006.92. The ambient PM₁₀ concentration when added to the PM₁₀ background concentration is below the NAAQS. If all the solids not included in the transfer efficiency were PM₁₀ then filtered with a 98.7% efficiency filter the modeled maximum PM₁₀ emission concentration is 0.023 ug/m³ per one hour average, 0.009 ug/m³ per 24 hour average, and 0.002 ug/m³ per annual average.

The PM₁₀ emissions have an insignificant effect to the total ambient air concentration. The background concentration for ESI's facility is 95 ug/m³ for a 24-hour period and 25.1 ug/m³ for annual period.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 Permit to Construct Required

ESI had a PTC issued November 8, 2000. This permitting action is to revise the PTC for applicability to determine compliance as instructed in a Consent Order issued December 28, 2004.

IDAPA 58.01.01.203.02 NAAQS

"No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:02. NAAQS...."

The facility has demonstrated compliance, to DEQ's satisfaction, that this project will not cause or significantly contribute to a violation of any PM₁₀ ambient air quality standards.

IDAPA 58.01.01.203.03 Toxic Air Pollutants

"No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:03. Toxic Air Pollutants Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586."

This revision of the PTC has determined the emissions for methyl n-amyl ketone, and n-butyl acetate were below their respective screen emissions levels. The prior permit had a daily TAP limit and the same limit is in the revised permit. Spreadsheet analysis is located in the appendix.

40 CFR 60 New Source Performance Standards (NSPS)

The revision of the PTC does not subject the paint booth to New Source Performance Standards.

40 CFR 61 and 63 National Emission Standards for Hazardous Air Pollutants (NESHAP) & MACT

The revision of the PTC does not subject the paint booth to NESHAP & MACT.

5.5 Permit Condition Review

- 5.5.1 The daily PM₁₀ emissions are of an insignificant amount and no PM₁₀ limit was established in the permit. The PM₁₀ emissions from the paint booth stack will not cause or significant contribute to a violation of a 24-hour PM₁₀ ambient air quality standard. The annual PM₁₀ emissions rate is inherently limited by the filter system efficiency, the maintenance plan, the HVLP style of spray gun, and the daily TAPs limit. Therefore, a PM₁₀ limit is not included in the permit. The PM₁₀ spreadsheet analysis is located in Appendix B.
- 5.5.2 The permittee is required to record and monitor the vehicles painted monthly. The application indicated the maximum of five vehicles per day can be painted using an average of 1.95 gallons of product per vehicle. The product's MSDS sheets indicate the VOC monthly limit, the TAP daily limit and filter maintenance plan established provided in the permit allows flexibility of paint selection and maintains the integrity of the permitted limits. The maintenance manual indicates the fiber filters are to be replaced weekly and the carbon activated filters are to be replaced monthly. The emission limits do not reflect any reduction allowance for use of the carbon activated filters. The transfer efficiency of the spray gun and the filter efficiency were the determining factors indicating the quantity of PM₁₀ emissions are insignificant in quantity and insignificant in ambient air impact. The permittee is required to retain the records onsite for the most recent two-year period and to make them available to DEQ representatives upon request.

6. PERMIT FEES

Earl Scheib of Idaho Inc submitted a \$1,000 PTC application fee on December 14, 2004, in accordance with IDAPA 58.01.01.224. ESI's emissions did not increase from this PTC revision. In accordance with IDAPA 58.01.01.225, the PTC processing fee is \$500. The fee of \$500 was received February 9, 2006.

Table 5.2 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	0.0	0	0.0
SO ₂	0.0	0	0.0
CO	0.0	0	0.0
PM ₁₀	0.0	0	0.0
VOC	0.0	20.5	<20.5>
TAPS/HAPS ^a	---	0	---
Total:	0.0	0	20.5
Fee Due	\$ 500.00		

^aTAPS/HAPS emissions are included in the VOC emissions.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The Boise Regional office was provided the draft permit for review on January 20, 2006. Comments were received and implemented from the regional office.

7.2 Facility Review of Draft Permit

The draft permit was provided for facility review on January 20, 2006. No comments were received from the facility.

7.3 Public Comment

This PTC revision of the prior PTC issued on November 8, 2000, indicates no emission increases. An opportunity for a public comment period was not required.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that Earl Scheib of Idaho be issued a draft PTC No. P-050003 for the paint booth. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

REB/bf Permit No. P-050003

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Appendix A

AIRS Information

P-050003

AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

Facility Name: Earl Scheib of Idaho, Inc.

Facility Location: Boise, Idaho

AIRS Number: 001-00176

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO ₂	B							U
NO _x	B							U
CO	B							U
PM ₁₀	B							U
PT (Particulate)	B							
VOC	B							U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

PM₁₀ Emissions Analysis

P-050003

Table based on actual product usage submitted in permit application
Earl Scheib of Idaho, Garden City

Product	Sp. Gr.	Water Density lb/gal	Gallon Density lb/gal	MSDS VOC Density lb/gal	Weight % VOC lb VOC/ total lbs in one gallon times 100	Application stated transfer efficiency 99 % transfer efficiency					
						Gallon of Product used per year (gal/yr)	Pounds of Product Used (lb/yr)	Pound of VOCs per Year (lb/yr)	Pounds of Solids in Product Used (lb/yr)	Pound per year enter filters lb/yr	Pound per year exit stack lb/yr
Europaint	1.0349	8.4	8.69	4.72	54.3	532	4624.8	2511.04	2113.7	21.1	0.27
Europaint SC	1.2173	8.4	10.23	2.4	23.5	52	531.7	124.8	406.9	4.1	0.05
M-300 Detail Solution	0.9892	8.4	8.31	0.5	6.0	28	232.7	14	218.7	2.2	0.03
S-135 MAK Gun Cleaner	0.819	8.4	6.88	6.88	100.0	30	206.4	206.4	0.0	0.0	0.0
S-142 Enamel Reducer	0.882	8.4	7.41	4.5	60.7	85	629.7	382.5	247.2	2.5	0.03
F-15 Fisheye Eliminator	0.819	8.4	6.88	6.1	88.7	3	20.6	18.3	2.3	0.0	0.0
L-107 Primer Screen	1.1285	8.4	9.48	0.79	8.3	37	350.7	29.23	321.5	3.2	0.04
U113V Sunscreen	0.9412	8.4	7.91	5.1	64.5	10	79.1	51	28.1	0.3	0.0
Dark Gray Seal Coat	1.1273	8.4	9.47	1.73	18.3	65	615.5	112.45	503.1	5.0	0.07
Light Gray Seal Coat	1.1273	8.4	9.47	1.68	17.7	106	1003.7	178.08	825.7	8.3	0.11
L-70 Top Coat	0.9556	8.4	8.03	3.5	43.6	7	58.2	24.5	31.7	0.3	0.0
L-80 Euroclear	0.9112	8.4	7.65	4.93	64.4	89	681.2	438.77	242.4	2.4	0.03
L-101Euro Pearl Midcoat	0.9112	8.4	7.65	4.93	64.4	9	68.9	44.37	24.5	0.2	0.0
EA-200 Eurocel	0.8323	8.4	6.99	0.88	12.6	12	83.9	10.56	73.3	0.7	0.01
P-02 Polyurethane	1.06	8.4	8.90	2.2	24.7	147	1308.9	323.4	985.5	9.9	0.13
Based on submitted data of annual paint usage totals =						1212	10494.0	4469.4	5024.64	60.2	0.77
						Average VOC-Solids % =		42.60%	57.4%		

PM₁₀ Emissions at 1.95 times the data submitted in permit application

Permit based on 101 cars painted a month using 1.95 gallons of paint products per car

Ave. density (lb/gal) = 8.7 (10494 lb/yr /1212 gal/yr)

Based on 101car/mo, 1.95 gal/car, 12 mo/yr, 8.7 ave lb/gal

20561.6 max lb/yr of paint

8759.2 max lb/yr of VOC (20561.6*42.6%)

11802.4 max lb/yr of solids (20561.6*57.4%)

11802.4*0.01*0.013=PM₁₀ out the stack = 1.53 lb/yr

1.53 lb/yr divided by 3085 hr/yr = 0.0005 lb/hr PM₁₀

0.0005 lb/hr*46.57ug/m3/ 1 lb/hr/1000ug/mg = 0.000023mg/m3 increase

(99% transfer efficiency, 98.7% filter efficiency)

Appendix C

Paint Emissions Analysis

P-050003

Appendix D

Screen 3 Analysis

P-050003

01/10/06
 09:59:12
 *** SCREEN3 MODEL RUN ***
 *** VERSION DATED 96043 ***

Earl Scheib of Idaho, Garden City

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
 EMISSION RATE (G/S) = 0.126000
 STACK HEIGHT (M) = 7.3152
 STK INSIDE DIAM (M) = 0.8839
 STK EXIT VELOCITY (M/S) = 19.9964
 STK GAS EXIT TEMP (K) = 293.1500
 AMBIENT AIR TEMP (K) = 293.1500
 RECEPTOR HEIGHT (M) = 0.0000
 URBAN/RURAL OPTION = RURAL
 BUILDING HEIGHT (M) = 4.8768
 MIN HORIZ BLDG DIM (M) = 12.1920
 MAX HORIZ BLDG DIM (M) = 18.2880

THE NON-REGULATORY BUT CONSERVATIVE BRODE 2 MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 0.000 M**4/S**3; MOM. FLUX = 78.100 M**4/S**2.

*** FULL METEOROLOGY ***

 *** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST	CONC	U10M	USTK	MIX	HT	PLUME	SIGMA	SIGMA	
(M)	(UG/M**3)	STAB	(M/S)	(M/S)	(M)	HT	(M)	Y	(M) Z (M) DWASH
1.	0.1910E-10	6	1.0	1.0	10000.0	27.06	3.34	3.34	NO
100.	19.59	4	15.0	15.0	30.0	7.99	8.20	5.26	SS
200.	15.91	4	10.0	10.0	30.0	9.65	15.56	8.50	SS
300.	15.37	3	2.5	2.5	30.7	28.52	34.82	21.21	NO
400.	13.96	3	2.5	2.5	30.7	28.52	45.06	27.13	NO
500.	12.73	5	1.0	1.0	10000.0	29.00	27.72	14.22	NO
600.	14.81	5	1.0	1.0	10000.0	29.00	32.53	15.95	NO
700.	15.79	5	1.0	1.0	10000.0	29.00	37.29	17.64	NO
800.	15.99	5	1.0	1.0	10000.0	29.00	42.01	19.29	NO
900.	15.71	5	1.0	1.0	10000.0	29.00	46.68	20.91	NO
1000.	15.40	6	1.0	1.0	10000.0	27.06	34.35	15.05	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
 102. 19.60 4 15.0 15.0 30.0 7.99 8.43 5.38 SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** NON-REGULATORY ***
 PERFORMING CAVITY CALCULATIONS
 WITH SCHULMAN-SCIRE (1993) MODEL

Stack x/L (LONGER side ALONG flow) = 0.5000000
 Stack x/L (SHORTER side ALONG flow) = 0.2500000

1) SHORTER Side ALONG flow, STACK nearer UPWIND edge of building

*** CAVITY2 -- Version: 1.0 Level: 940325 ***
 FLOW IS REATTACHED
 Stack distance from upwind face (m) = 3.048000
 Cavity Length (m) = 13.16143
 Cavity Height (m) = 4.876800

MAX Concentration = 41.8 (ug/m**3) for ws(10m) = 20.0 (m/s)

2) SHORTER Side ALONG flow, STACK nearer DOWNWIND edge of building

*** CAVITY2 -- Version: 1.0 Level: 940325 ***
 FLOW IS REATTACHED
 Stack distance from upwind face (m) = 9.144000
 Cavity Length (m) = 13.16143
 Cavity Height (m) = 4.876800

MAX Concentration = 46.6 (ug/m**3) for ws(10m) = 20.0 (m/s)

3) LONGER Side ALONG flow, STACK nearer UPWIND edge of building

*** CAVITY2 -- Version: 1.0 Level: 940325 ***
 FLOW IS REATTACHED
 Stack distance from upwind face (m) = 0.0000000E+00
 Cavity Length (m) = 9.864864
 Cavity Height (m) = 4.876800

MAX Concentration = 24.1 (ug/m**3) for ws(10m) = 20.0 (m/s)

4) LONGER Side ALONG flow, STACK nearer DOWNWIND edge of building

*** CAVITY2 -- Version: 1.0 Level: 940325 ***
 FLOW IS REATTACHED
 Stack distance from upwind face (m) = 18.28800
 Cavity Length (m) = 9.864864
 Cavity Height (m) = 4.876800

MAX Concentration = 17.5 (ug/m**3) for ws(10m) = 20.0 (m/s)

 END OF CAVITY CALCULATIONS

 *** SUMMARY OF SCREEN MODEL RESULTS ***

CALCULATION MAX CONC DIST TO TERRAIN
PROCEDURE (UG/M**3) MAX (M) HT (M)

SIMPLE TERRAIN 19.60 102. 0.

BUILDING CAVITY 41.83 13. -- (SHORTER side ALONG flow;
-- stack nearer upwind face)
BUILDING CAVITY 46.57 13. -- (SHORTER side ALONG flow;
-- stack nearer dnwind face)
BUILDING CAVITY 24.08 10. -- (LONGER side ALONG flow;
-- stack nearer upwind face)
BUILDING CAVITY 17.46 10. -- (LONGER side ALONG flow;
-- stack nearer dnwind face)